Genetic Diversity of Seven Xinjiang Bermudagrass--Isozyme Electrophoretic Patterns

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Introduction Bermudagrass (*Cynodon* spp .) is one kind of major warm turfgrass , has high regrowth ability , density , and stress resistance . It has popular use in public parks , golf courses and sport fields . The morphological characteristics , isozyme electrophoretic patterns (Zhen Yuhong , 2003 ; Wang Zan , 2004) , DNA typing of some Bermudagrass variety (Fu Lingling , 2003) have already been studied . Xinjiang bermudagrass resources have excellent cold resistance ; the morphological characteristics have been studied (Abulaiti , 1998) . For the new varieties of breeding , the genetic diversity of isozyme and DNA level of Xinjiang bermudagrass is need to be studied in more details .

Material and method Seven materials , including *Cynodon dactlylon* L . pers cv . Xingnong No .1(C1) , *Cynodon dactlylon* L . pers cv . Xingnong No .2(C2) , *Cynodon dactlylon* L . pers cv . kashi(C3) , Bermudagrass line C4 , C5 ,C6 ,C7 from Xinjiang Agricultural University , were used in this study . Three pots of each material were maintained in the greenhouse ; healthy young leaves were collected , placed on ice , and taken to the laboratory . Homogenates were prepared according to method (Guo Raojun , 2001) from 0 .2 g tissue placed in a chilled mortar containing 700ul extract , then that were transferred into centrifuge tube , 9000r/min , 4℃centrifuged for 15min , the supermatant adding the same volume loading buffer (20% sucrose+0 .1 % bromphenol blue) evenly mixed , stored 4℃ for using . Electrophoresis was conducted in 4℃ refrigerator , Peroxidase , esterase , Acid phosphatase , superoxide dismatase staining were carried out according to the method (He Zhongxiao ,1999 ; Wang Zhongren ,1996) . All differences reported are based upon the presence , intensity and absence of isoenzyme bands , the genetic similarity coefficient was calculate , the polymorphism of electrophoretic patterns was studied , cluster analysis was done with DPS v2 .00 .

Table 1 *Polymorphic of isozyme of Xinjiang bermudagrass .*

isozyme	total number of belt	polymorphic belts	Polymor-phic rate
peroxidase	6	4	66 .7
esterases	7	6	85 .7
Acid phosphatase	5	4	80 .0
superoxide dismutases	4	2	50 .0
total	22	16	72 .7

Result and analysis Sample amounts , gel concentration influenced experiment result , the optimal condition of isozyme electrophoresis was established , 30 ul sample and 10% gel was suitable for isozyme electrophoresis of Xinjiang Bermudagrass . Polymorphism analysis of isozyme is showed in Table 1 . The electro-phoresis patterns of the four enzyme existed high polymorphism among the materials , the average polymorphic rate was 72 .7% . Among the four kinds of isozymes , the esterase produced the most belt , moreover polymorphic rate was the highest . however the belt of superoxide dismutases was the least .

As far as the four isozyme patterns were concerned , the belt quantity (Table 2) , intensity (picture not showed) had difference among the seven Xinjiang bermudagrass . The unique band existed for several materials , but no single isozyme could be used to distinguish the seven materials . By cluster analysis (Figure 1) , the seven materials were divided into three kinds . Type Ⅰ including Xinnong NO .2 , Xinjiang C2 , Xinjiang C4 and kashi bermudagrass .Type Ⅱ including XinjiangC3 , XinjiangC5 .TypeⅢ including Xinnong NO .1 .

Table 2 *The analysis on isozyme pattern characteristic .*

material	peroxidase	esterase	Acid pho-sphatase	superoxide dismutase
C1	2	4	2	2
C2	5	2	3	3
C3	4	4	1	3
C4	4	3	2	2
C5	3	2	2	2
C6	4	3	2	3
C7	3	1	2	3

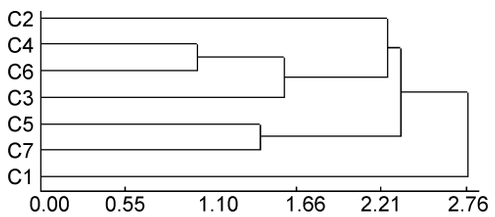

Figure 1 *Cluster analysis on is ozyme electrophoretic patterns of seven Xinjiang bermudagrass .*

Reference

ZHENG Yuhong , LIU Jianxiu , CHEN Shuyua . Study on Diversity of Germplasm of Cynodon dactylon in China—I .Analysis of Electrophoretic Isozyme[J] .*Grassland of China* , 2003(5) :52～27 .